Interview with William J. Perry, M.D. (former CDR, MSC, USN). This interview is an effort to focus on the contributions of officers and corpsmen who comprised a special group within the medical department who performed a distinctive role in the control of malaria and other insect-borne diseases in the South Pacific during WWII. As the days went on, these people began to fill many other billets within the Department that greatly enhanced the productivity of medical service to and for the Navy. Interview conducted by Jan K. Herman, Historian, Bureau of Medicine and Surgery, September 9, 1999. (Final version submitted by Dr. Perry in November 2000.) (1917-2010)

FIRST OF ALL, A BRIEF GLIMPSE OF WHERE YOU GREW UP AND YOUR EARLY INFLUENCE IN THIS SPECIALTY.

I grew up in Grass Valley, a little mining town in Northern California. I attended the local schools and was encouraged to pursue a college education by my high school science teacher. I did my undergraduate and early graduate studies at the University of California influenced by the professional guidance of Professor W.B. Herms. Professor Herms was a noted expert in the field "Medical Entomology." During the years in the early 1900's, he awakened a skeptical public to the necessity of the control of malaria in California. His intensive campaign for nearly 4 years contributed to the elimination of malaria from that state.

If one looks at the plan of action he details in his 1903 book "Malaria" one can see many similarities to the South Pacific plan for malaria control, i.e. teaching, planning, community education, vigilance and institution of proper control and recognition of the habits of the vectors.

I was fortunate indeed to have studied under a man who contributed so much to our knowledge of malaria control and how many of those ideas of his were so significant when the Navy Medical Department came face to face with this tremendous problem 40 years later.

TELL ME ABOUT YOUR CAREER IN THE NAVY IN THAT RELATIVELY NEW MSC CORPS.

I was commissioned an Ensign in 1941 when hostilities were imminent. It was the Navy designation H(V)S that subsequently became the Medical Service Corps. I was ordered to the old Navy Hospital and School in Washington, D.C. Interestingly enough, upon arrival in Washington there were some people in the Bureau who were not sure just what to do with these newly arriving scientists! I was assigned to the Department of Tropical Medicine under an officer who had training in the Panama Canal. It was he who rose to the occasion to rally the Navy to establish a workable malaria and epidemic disease control for the Pacific upon the onset of hostilities. The Naval Hospital in Washington soon moved to Bethesda. I later joined the Malaria control Unit in the South Pacific as the area entomologist. Future tours were spent in the office of Naval Research - to London as a science officer - to Camp Lejeune Naval Medical Research Unit - to Washington D.C. to head the Allied Science Section at BuPers

WHAT WAS THE COURSE LIKE THAT WAS TAUGHT HERE (WASHINGTON, D.C.)

Newly inducted medical officers and corpsmen were taught the essentials of identifying important insects and other parasites including blood smears of malaria, filariases, and intestinal protozoa that one expected to find in the South Pacific. These were regular class endeavors and field surveys accompanied these lectures. Students at this early stage, were doubly interested in malaria carriers because they discovered an anopheline mosquito breeding on the construction site of the hospital grounds in Bethesda (no malaria). This brought reality to what they would

see in the Pacific. Equipment for spraying by aircraft and motor vehicle was demonstrated, with help from the U. Department of Agriculture in Beltsville, MD. During this time, 2 laboratory manuals were written to facilitate instruction in these courses.

SO YOU WENT TO BETHESDA WHEN THE MEDICAL SCHOOL MOVED?

Right. Actually, the medical school was one of the first departments to move into the new buildings.

AND YOU CONTINUED TO TEACH THE SAME COURSES?

Basically, the same but by this time one had support of newly commissioned officers with their individual talents in fields such a parasitology, medical entomology, ecology, mites, ticks, and even rodent zoology, the courses took on a new look of importance and clarity. Their talents tended to better stress the importance of this course for their future assignments. Emphasis was directed on communicating what information these specialists had in their fields. Many of these people became lecturers themselves as the classes convened while they themselves were under instruction in the overall program.

In reality we were dealing with a whole new ecological and environmental situation in the Pacific area. Over the years, due to the "iron curtain' over the Japanese mandates the Pacific group did not come under European influence until after 1800, and there was very little scientific information available in these special areas, much of that published by earlier investigators, was not current or accurate.

With the onset of hostilities, it was grossly apparent that the military was not only unready due to the meager knowledge and lack of information on the disease map in this area, but there was no formal plan in place for the mass treatment and control of these diseases under new environmental situations.

Having much foresight and energy LCDR Sapero (MC) along with others in the Bureau of Medicine and Surgery, set to work in the laboratories at the Navy Medical School outfitting small groups of officers and men who would be deployed with combat troops. The aim here was primarily to have basic tools to set up a working base for the units. Once in the field, these units expanded greatly. It was Dr. Sapero's effort however, that produced the protocol that was signed by Admiral Halsey and formally set into motion the program for the combined forces in the South Pacific. It became essentially administratively independent of current operational policies and that protocol would eventually define the success of one of the great preventive medical victories in our time.

Dr. Sapero thus became the area malariologist under Halsey and was responsible for coordinating the entire program reporting directly to ComSoPac. An area entomologist was also designated by this directive whose function was to bring together at regular intervals information on the various aspects of control of insect vectors in the occupied areas. This information then was passed on to the malariologist which in turn made its way back to the teaching facility in Bethesda. Dr. Ken Knight of the Navy served initially in this capacity and as typical scientists he and Dr. J. Belkin of one of the Army units, in their scientific endeavors unraveled the nomenclature of the Anopheline complex in the Pacific while serving here and upon their return to the states spelling out the means of more accurately identifying these species and their special habitats.

CAN YOU SPELL OUT A TYPICAL ORGANIZATION OF A MALARIA CONTROL UNIT?

Each varied somewhat depending on the unit to which it would be assigned. The Army and Australian units followed the same protocol spelled out in the South Pacific directive. Generally, there were two or three officers at this early stage and the same number of corpsmen for each unit. This number increased as the demand for services increased. As regulations became recognizable to the military, eventually these malaria control units took over the entire program including drug distribution to troops, natives, giving lectures, distributing pamphlets and motion pictures to military personnel, equipping personnel with sprayers and general enforcement of the rules. At one time, the Navy alone had 11 units scattered throughout the Pacific.

All these efforts paid off tremendously for as the battle arena moved forward, casualties from disease decreased. Knowledge gained from one area was applied to a new problem area elsewhere. Combat units would often report losing 25-50 percent of their combat efficiency. By the time island advances were made, rates dropped; by 1943 sanitary and medical control measures supervised by the units had begun to be impressive.

A main staging area was initially established on Esperitu Santo in the New Hebrides and from this point current information was passed on to the incoming units. Entomological records were generally completed here and forwarded to the area malariologist. Some research was undertaken at this island to better understand the ecologic habits of the principal vectors of disease encountered to date. One soon learned that the principal dengue and malaria insect vectors did not change their breeding habits much throughout the Pacific except they did adopt to some war-time events. Overflowing streams due to rains and military maneuvers flushed the malaria vectors from their favorite breeding places along the margins of algae and water-cress mats of flowing streams and adapted well. This was the type of information that one added to the teaching curriculum in the States.

WHAT WERE THE ACTUAL MECHANICS OF THE SPRAYING? HOW WOULD THAT OPERATE?

Initially, one relied on what help could be obtained from the assigned combat units. Knapsack spraying was common to all local areas and eventually aircraft provided by military units were equipped for aerial spraying. Motor vehicles obtained from motor pools were modified to handle a more rapid dispersal of sprays. This willingness of corps commanders to provide such equipment is a testament of the respect they held for the threat of disease and the capabilities of these special units.

Understandably, military leaders had difficulty in accepting the fact that a man infected with malaria was a casualty surely as though he had been wounded in enemy action. It became apparent however, as movement progressed through the Pacific the Malaria and Disease Control units gained the respect of all as they performed as a cohesive unit in this tremendous task.

WHAT WOULD THEY HAVE USED FOR INSECTICIDE AT THIS POINT? DDT?

By this time, one had access to large amounts of DDT. Experiments in the States demonstrated the effectiveness of this chemical against many insects. We also were aware of the potential hazard to humans but with the toll of malaria and dengue rising and the possibility of some campaign failing due to the high morbidity, control programs were pushed to the limits to use this agent.

WOULD THE NATIVES BE UTILIZED IN THESE CONTROL EFFORTS?

The natives were of great help but, they needed much supervision. Directions needed to be given by hand signal. The close presence of natives to military forces was troublesome to commanders in the field and some medical personnel knowing that natives of the Solomon Islands were heavily seeded with malaria were strongly opposed to the use of natives in a combat zone or in bivouac areas. Military officers however, did recognize the problems, but the gravity of the military mission required all troops to be committed to combat and the process of managing this problem of a medical nature was left to the trained personnel of the insect control units.

SO DID YOU GET INVOLVED AT ALL IN THE TAIL END OF THE GUADALCANAL CAMPAIGN AND THE REMAINDER OF THE SOLOMONS CAMPAIGN?

My tour of duty took me through the Solomon's to Bougainville.

WHERE DID YOU GO FROM THERE?

I returned to Bethesda at the Navy Medical School.

HAD THE COURSE CHANGED AT ALL NOW THAT MORE EXPERIENCE WAS GAINED IN THE FIELD?

One did have a better outlook of the enormity of the problem. The basic curriculum was essentially unchanged and some aspects of control and need for identification of certain diseases became diluted, superfluous, or even non-essential in view of field observations. This is often true as science progresses. We learned how important it was to work closely with field commanders to establish good relations for they often provided us with the necessary equipment for large scale operations not recognized in the early directives.

BUT YOU HAD SEEN SOME DRAMATIC RESULTS OUT THERE IN THE FIELD.

And the results without reservation were attributable to the conscientious efforts of a whole new breed of specialty officers and men that introduced allied science to the Medical Corps. Statistically there is no doubt in our minds for claiming success. From 1942 through 1945 there were 165,000 cases of tropical diseases – the prominent ones—110,000 malaria, 31,000 dengue, 11,000 filariasis and 24,000 cases of dysentery.

The most important point of these numbers is that as the forces moved northward there was a steep decline in new cases. With landings on Bougainville, disease was amazingly low although it was felt that 50 percent of the troops were probably seeded with malaria.

As a measure of effective mosquito control, in the nearby Treasury Islands, no malaria transmitting mosquitoes were found after 10 days of occupation, a testament to their diligent control efforts.

ON YOUR RETURNS TO CAMP LEJEUNE, N.C., WHAT WERE YOUR DUTIES?

This was a purely research facility and there were several officers and corpsmen who were involved in problems designated by the Navy Medical Department. I was able to sort out notes on the ecology of malaria, dengue and filariasis from that experience gained in the Pacific. It provided me time to publish these findings as part of the accomplishments in the Navy in the stressful war years.

AND AFTER THE WAR?

I continued to serve in the Office of Naval Research which included a remarkable and educational tour as science officer in the Embassy in London which provided me access, to among other scientific efforts, European workers in this field of insect borne diseases. Following this I returned to BuPers as head of the Allied Science section.

SO THIS WOULD HAVE BEEN IN 1947?

Yes.

DID BUMED PROVIDE THE INITIATIVE AND ORGANIZATION FOR ALL OF THIS?

BUMED gave its full support to this new campaign. It took the "kindling thoughts" from one of their own with foresight and enthusiasm to develop one of the most remarkable malaria and epidemic disease programs in current military history. The consequence was saving lives and reducing morbidity in troops occupying these islands and this achievement was a monument in preventive medicine.

THE NAVY HAS NEVER BEEN VERY GOOD, AND ESPECIALLY THE MEDICAL DEPARTMENT, IN RECORDING ITS HISTORY. THE HISTORY OF THE MEDICAL DEPARTMENT IN WORLD WAR II SEEMS TO BE THE BEST WE HAVE.

There were volumes of material gathered in the South Pacific as it related to this problem, but I have been unable to locate much of what I knew had been written. The Army did a better job of recording their efforts.

DR. SAPERO'S NAME CERTAINLY HAS COME UP IN THINGS I'VE READ, PAPERS PUBLISHED DURING THE WAR. HE SEEMS TO HAVE BEEN REALLY QUITE A MAN.

He was a gentleman and devoted Navy officer with the energy and conviction that propelled this program. His outstanding insect-borne disease program could very well rival the yellow-fever program at home and in the Panama Canal conquest in the early days of that crisis.

I SAW SOME QUOTES THAT MacARTHUR HAD COME UP WITH ABOUT HOW BAD IT WAS.

As I pointed out earlier, the initial seeding with malaria and dengue took its greatest toll early -- 1942-44. The incidence of malaria dropped but the readmission rates stayed moderately high due to breakthrough from malaria contracted at other highly endemic areas. Dengue with a different course of morbidity and contractability, showed a drop from 27,117 cases early in '44 to 1,870 in '45. So the overall morbidity rates were significant in view of energetic control

BUT THE REAL KEY TO IT WAS THE CONTROL OF THE VECTORS THE USE OF DDT AND NOT MUCH WAS AVAILABLE AT THAT TIME?

Adequate supplies became available as time permitted. We began to learn of the hazards of DDT to fish and wildlife long after the war, but there was no room for compromise. The anopheline mosquito vectors needed to be eliminated or reduced to provide that safety net for combat troops and support personnel.

BUT THEN THE WAR WAS OVER AND THE THREAT WAS GONE. IN 1950 WHEN THE KOREAN WAR BROKE OUT, THERE WERE FEW PEOPLE LEFT IN THE MEDICAL DEPARTMENT WHO HAD HAD COMBAT EXPERIENCE, SO THEY WERE STRUGGLING. THAT SHORTSIGHTEDNESS, I'M AFRAID, HAS NOT LEFT US.

I agree. Your questions lead me to one that could be anticipated. In my naval service, I tried to encourage the retention of such officers in the Navy. This group of trained scientists filled these billets extraordinarily well during the war and would have contributed greatly to the overall efficiency of the Medical Department if they were encouraged to stay. Many, of course, were truly university oriented and preferred that environment to fulfill their life's goal. I believe there was some lack of foresight in some sections of the Navy in allowing these talents to slip by. One can be grateful however, that Research at several levels continues on in the Navy - especially the medical department.

Admiral Smith was always a strong supporter of this aspect of medicine and recognizing how devastating malaria proved to be in the early years of the war, the Bureau of Medicine and Surgery established a Research Division and today NAMRU #2 is actively researching new ways to fight malaria from their post in Jakarta.

I REALLY APPRECIATE YOU SPENDING TIME TO TELL ME OF YOUR EXPERIENCES DURING AND AFTER THE WAR.

This has been a fruitful recollection for me and I hope that time hasn't warped or affected my memory too much. I hope this chronology of events of a remarkable group of people within the Medical Department of the U.S. Navy will stir memories in others who walked the same path. I feel that these officers and men deserve special recognition as medical personnel of the Navy.

Although occasional mention of "malaria control" personnel assisting the medical staff appears in historical footnotes in the Medical Department, I felt that their role was more than just a passing thought to readers or a brief note in history. Theirs was a well planned concentrated effort toward one goal - improve on the health, protection and well-being of combat forces.

I was only a member of this team but, can recall the special scientific contributions of talented officers and men in all units. Much of their work is chronicled in today's scientific literature and they have become recognized by their peers for their special contributions.